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AGRICULTURAL SURVEY OF FOUR TOWNSHIPS IN SOUTHERN NEW HAMPSHIRE.

BY

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AGRICULTURAL SURVEY OF FOUR TOWNSHIPS IN SOUTHERN NEW HAMPSHIRE.

INTRODUCTION.[1]

The agriculture of New England has undergone very marked changes within the last 50 years. Previous to 1860 the area of improved farm land increased, but upon the opening of cheap land in the West large areas of New England farm land commenced to revert to forest. This change was desirable on some areas that were cleared in early days and which never were adapted to farming purposes. The popular belief that New England farm land is a deserted waste is untrue, as the much-talked-of abandoned farms that are commonly pictured as lying idle, with bare fields growing up to weeds, are not to be found. On these farms, many of which are abandoned agriculturally, nature has been remarkably quick to start reforestation. No one in traveling through the New England States can fail to note the large area of woodland as compared to the improved farm land. The 1899 census figures for New Hampshire show only 29 per cent of the State to be in improved land, which means that the other 71 per cent is practically all in forest. The curve in figure 1, showing the increase in the area of unimproved farm land, is an index of the extent to which this country has become reforested.

PURPOSE OF THE SURVEY.

A farm survey was undertaken during 1909 by the New Hampshire College Agricultural Experiment Station and the Office of Farm Management of the Bureau of Plant Industry of the United States Department of Agriculture. The purpose of the survey was to determine the relative condition of the farms in the region, the prevailing types of farming, and the profitableness of these types for that section; also to learn the distribution of capital, income, and expenses, so as to gain a correct view of the agriculture as it now exists. The plan of the work was to visit personally each farmer within a certain area and obtain from him the information desired. In this way fairly accurate data were collected and these were checked up by careful inspection on the part of the person making the survey.

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[1] During 1909, at the request of the New Hampshire College Agricultural Experiment Station, Mr. Thomson was assigned to make a careful study of the equipment, expenses, and income on the farms in four townships in southern New Hampshire. These townships were selected as representative areas for that section of the State. The expenses of this investigation were borne jointly by the Department of Agriculture and the New Hampshire College Agricultural Experiment Station. The results are of much interest in connection with the general status of agriculture in that section and they also furnish valuable data concerning the relative profitableness of several types of farming.—WM. A. TAYLOR, *Acting Chief of Bureau.*

ACCURACY OF THE RESULTS OBTAINED.

The information obtained has been carefully tabulated and averaged so that the results as given may be considered fairly accurate. This accuracy depends on the law of averages. For instance, the individual farmer in giving the amount of his expenses for the year might make a considerable error, but he is just as apt to overestimate as to underestimate. According to the law of averages, therefore, when a considerable number of farms are taken into consideration the amount of the overestimate will about equal the amount of underestimate, so that the average is for practical purposes fairly accurate.

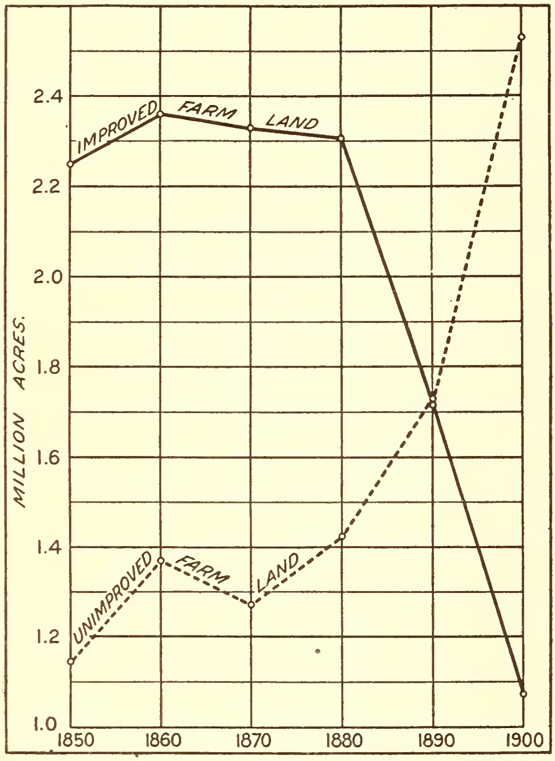

FIG. 1.—Diagram showing the decrease in improved and the increase in unimproved farm land in New Hampshire from 1850 to 1900. (U. S. Census.)

To explain this a little more fully, suppose that a hundred men who know something of the weight of horses estimate the weight of a given horse. Some of them will estimate too much and others too little. But if the men have a fair idea of the weight of horses the average of all their estimates will be very close to the correct weight of the horse. The figures here given are in each case only averages of a considerable number of farms.

AREA SURVEYED.

The area selected for the survey was a group of four townships in the southern part of Hillsboro County, N. H. They represent a typical locality in the southern portion of the State, extending from the Nashua River on the east to the higher and rougher land on the west. The town [1] of Hollis may be considered to be an upland town, partially surrounded by a belt of lowland made up of sandy soils. All the central part of this town is devoted to varied types of farming, while to the west and north are considerable areas of woodland. Amherst lies directly north of Hollis and extends to the town of New Boston on the north. This town includes two types of agricultural land, part of it being river bottom with many varieties of soil, while all the western and northern part of the town is more or less hilly. Milford, the smallest in area, includes considerable hilly land in the southern part and the wide valley of the Souhegan River. The soils in this river valley are considerably heavier than those on most of the low land. Lyndeboro is distinctly an upland town, having practically no low lands, and is of a rough, hilly nature. Its soils on the whole are heavier than those in the Merrimac Valley or sand plain.

In all the towns the types of farming vary widely. Fruit growing is confined chiefly to Hollis and Lyndeboro, poultry raising to Milford, while dairying is practiced about equally in all the four towns. One of the chief objects of the survey was to study the relation between these types of farming.

The agriculture of the region as a whole is as varied as its topography and its soils. No one type of farming predominates and no system of definite rotations is found. In fact the farming operations of the region are merely remnants of the system which was prevalent 50 years ago. Everywhere one finds examples where habit has continued a type of farming long after that type has ceased to be profitable. A farmer who has grown up with the agriculture of the community is slow to see that his type of farming is no longer suited to present conditions. The results shown in some of the tables that follow bear out this statement.

The tables are arranged (1) to show a comparison of the farms in the different towns and (2) to compare the different types of farming. A farm is classed with a particular type if 50 per cent or more of its income is derived from the products characteristic of that type.

METHODS OF CALCULATION USED.

The capital or investment is the average inventory for two years of the real estate and equipment that the farmer owns.

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[1] The word "town" is used here in the sense in which it is commonly used in New England. In this sense it is synonymous with the word "township" as used in most parts of the United States.

The receipts include all the cash receipts plus any increase in the value of the property at the end of the year.

The expenses include all cash paid out plus any decrease in the value of property; the value of the labor by members of the family other than the farmer is not added to the expenses, but is stated as a separate item and must be deducted from the farm income when determining the amount that the owner receives for his labor. No household or personal expenses are included except the value of board furnished to hired help.

The farm income represents the difference between the receipts and expenses. It is not net profit to the owner, for the interest on the investment and the value of the family labor have not been deducted.

The labor income represents the farmer's salary or what he makes as a result of his own labor after deducting 5 per cent on the investment. To illustrate, suppose a farmer's labor income is $400; this means that he has made 5 per cent on the investment and in addition has cleared $400 above all farm expenses, besides having the use of the house, fuel, and water, and such farm products as were consumed in the house.

To find the per cent on investment which a farmer makes, the pay for his own labor and that of his family must be deducted. Assuming that $300 is a reasonable allowance for the actual labor which a farmer does, if $300 is deducted for the owner's labor and also the value of his family's labor from the farm income and the remainder is then divided by the average investment, the result is the per cent which the farmer has made as a result of his farming operations for the year.

RESULTS OF THE SURVEY.

Throughout the whole region surveyed, and the same holds true throughout the State, the acreage of tillable land is very small. Furthermore, the tillable land on each farm is usually made up of small, irregular fields. Extensive cultivation of large areas is impossible.

TABLE I.—*Average areas, capital, receipts, expenses, and profits for 266 farms, by towns.*

Items covered by survey.	Amherst (60 farms).	Hollis (95 farms).	Lyndeboro (43 farms).	Milford (68 farms).	Average (266 farms).
Area ... acres..	127	97.3	139.3	86.4	108
Tillable area ... do....	31.1	37.8	30.1	25.4	31.9
Capital invested ...	$5,008.00	$5,401.00	$6,066.00	$5,130.00	$5,350.00
Receipts ...	1,323.00	1,534.00	2,059.00	1,575.00	1,582.00
Expenses ...	808.00	919.00	1,191.00	881.00	928.00
Farm income ...	515.00	615.00	868.00	694.00	654.00
Interest on investment, at 5 per cent ...	250.00	270.00	303.00	256.00	267.00
Unpaid family labor ...	27.00	61.00	68.00	43.00	50.00
Labor income, after deducting 5 per cent interest on investment ...	238.00	284.00	497.00	395.00	337.00
Wages per day (313 days) ...	.76	.91	1.58	1.25	1.07
Profit on investment ($300 for owner's labor deducted) ...	*Per cent.* 3.8	*Per cent.* 4.7	*Per cent.* 8.2	*Per cent.* 6.8	*Per cent.* 5.7

In Table I the wages per day are figured from the labor income on a basis of 313 days. Many hired men on farms receive $30 a month, which averages $1.15 for each working day, together with room and board. The average farmer in these four towns receives $1.07 per day, his house rent, and what the farm produces toward his own living. It must be remembered, however, that if the farmer owns his farm, thus having no interest to pay, he will have the amount of this interest in addition to use for living expenses. Aside from the 266 farms from which complete records were obtained there were in the four townships 156 other farms, which have been divided into the four following classes:

(1) There were 28 vacant farms, a few of which were partly worked by neighbors, but others were entirely abandoned agriculturally.

(2) There were 62 farms on which persons were living but doing practically no farm work. Most of those in this class had a garden, kept one horse and a cow, and perhaps had a small tillable field from which they cut hay enough for the horse and the cow.

(3) There were 41 farms the owners of which worked the greater part of all of the year at other than farm work. Many teamsters are in this class. A few of them did some farming, but the greater part of their income was from sources not connected with farming operations.

(4) There were 25 farmers who were doing some real farm work, but from whom the records received were not complete enough to be used in the tabulations. Four of this number were on rented farms, and nearly all of the others had moved to the farm within a year, so that a complete yearly record was not available.

The average size of these 156 farms is about 80 acres, with a very small percentage of tillable land.

TABLE II.—*Average distribution of investment of capital on 266 farms, by towns.*

Town.	Number of farms.	Real estate.		Machinery.		Live stock.		Miscellaneous.		Total capital.
		Value.	Per cent.	Value.	Per cent.	Value.	Per cent.	Value.	Per cent.	
Amherst	60	$3,784	76	$265	5	$775	15	$184	4	$5,008
Hollis	95	4,162	77	365	7	776	14	98	2	5,401
Lyndeboro	43	4,729	78	408	7	812	13	117	2	6,066
Milford	68	3,989	78	273	5	739	14	129	3	5,130
Average for 266 farms	....	4,124	77	311	6	772	14	128	3	5,350

Table II shows that the distribution of capital is very uniform in the towns. The average farmer has practically three-fourths of his capital in real estate, including permanent improvements, and one-fourth in equipment. The amount that each farmer has in each item varies somewhat in the different towns, but the percentage or proportionate amount in each item is practically identical. In a survey of 178 farms in the State of New York, by Mr. M. C. Burritt, the results of which are published in Bulletin 271 of the Cornell University Agricultural Experiment Station, he found that the average farmer had invested 77 per cent in real estate, 14 per cent in live stock, 5 per cent in machinery and tools, and 4 per cent in miscellaneous items.

TABLE III.—*Average distribution of profits on 266 farms in their relation to capital invested.*

Labor income.	Capital.	Number of farms.
From —$600 to —$1	$4,660	80
From 0 to 200	4,665	52
From 201 to 400	4,271	46
From 401 to 600	4,874	29
From 601 to 800	5,799	18
From 801 to 1,000	6,456	13
From 1,001 to 2,000	9,906	28

The distribution of profits in Table III shows that some farmers are receiving very good salaries for their work, while on the other hand nearly one-third of them receive an income insufficient to pay 5 per cent on the capital invested, to say nothing of additional pay for their own time and labor. The statement of some farmers that they work for nothing is shown to be true in many cases.

TABLE IV.—*Average income from different sources on 266 farms, by towns.*

Source of income.	Amherst (60 farms).	Hollis (95 farms).	Lyndeboro (43 farms).	Milford (68 farms).
Crop:				
Apples	$38	$186	$239	$47
Potatoes	27	24	11	12
Hay	16	89	15	41
Lumber and wood	68	82	234	86
Miscellaneous crops	41	124	195	27
Total crop receipts	190	505	694	213
Live stock and miscellaneous:				
Sales of live stock	152	168	222	235
Milk and butter	612	553	712	537
Eggs	137	137	295	501
Inventory increase	50	50	40	39
Outside labor	183	121	95	49
Summary—(percentages):	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Crops	14.3	32.8	33.7	13.5
Live stock	11.4	10.8	10.7	15.3
Live-stock products	56.6	45.0	48.9	65.6
Inventory increase	3.7	3.2	1.9	2.5
Outside labor	13.8	7.8	4.6	3.0

Table IV shows from what crops the average farmer in the portion of New Hampshire under consideration receives most of his income. The receipts from lumber and wood are significant of the area of unimproved land. The fact that the two towns of Hollis and Lyndeboro are mostly upland explains their income from apples. Milford has an unusually large number of poultry men as shown by the amount received from the sale of eggs in that town.

By outside labor is meant receipts from hauling or any other outside work performed at odd times. There seems to be some relation between the proportion of outside work which a farmer does and his profits. In other words, it would appear that farmers who are not making enough money at farming gradually let their farm business go and take up teaming, thus changing from farmers to laborers. The large percentage of total receipts coming from stock and stock products shows that live stock is the basis of the agriculture in this region.

Table V indicates the expenditures in connection with the management of these farms.

TABLE V.—*Average distribution of expenses on 266 farms, by towns.*

Object of outlay.	Amherst (60 farms).	Hollis (95 farms).	Lyndeboro (43 farms).	Milford (68 farms).	Average (266 farms).	
					Amount.	Per cent.
Labor	$187	$280	$237	$139	$216	23
Grain	405	377	512	558	451	49
Hay	12	15	28	14	16	2
Fertilizer	20	48	18	13	28	3
Live stock	28	25	79	28	35	4
Inventory decrease	59	36	173	57	69	7
Miscellaneous	97	138	144	72	113	12
Total	808	919	1,191	881	928	100

The expenses for labor include only the paid labor and the board of laborers. The very large decrease in the value of farms in the town of Lyndeboro is due to the large sales of lumber in that town, thus bringing down the inventoried farm value for the second year. Very often one hears a farmer say that he pays out everything for fertilizer, but this expense is comparatively insignificant if compared with the amount paid out for western grain. The exceedingly large expenditure for this item is partly explained by the charts shown in figures 2 and 3. On the other hand, figure 3 shows that the quantity of hay and forage produced in recent years has, on the whole, increased.

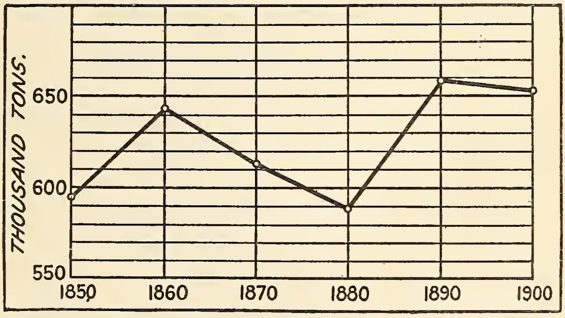

FIG. 2.—Diagram showing the total production of hay and forage in New Hampshire from 1850 to 1900. (U. S. Census.)

TABLE VI.—*Average area, capital, receipts, expenses, and profits for 266 farms, by types of farming.*

Items covered by survey.	Dairy (118 farms).	Poultry (40 farms).	Fruit (9 farms).	General (99 farms).
Area........acres..	133.7	65.4	45.7	100.1
Tillable area........do....	37.6	18.2	21.1	31.6
Capital invested........	$6,134	$4,066	$4,730	$4,972
Receipts........	$1,633	$1,754	$2,300	$1,386
Expenses, including unpaid family labor........	$1,071	$1,072	$908	$838
Interest at 5 per cent........	$306	$203	$236	$248
Labor income........	$256	$479	$1,156	$300
Profit on investment........per cent..	4.27	9.39	23.08	5.0

In Table VI the farms are classified according to the sources of income.[1] The wide difference in the profits between some of the types would seem to indicate that under present conditions poultry and fruit growing are much better adapted to that locality than either dairying or general farming. The results shown under the heading of fruit farms can not be taken as fairly representative of that type, because of the few farms in that class. But there is every reason to believe that the fruit industry is particularly well suited to portions of southern New Hampshire and should be given special attention. Inasmuch as dairying and general farming are usually associated with extensive farming operations, these types are limited in this respect by the rugged character of the country.

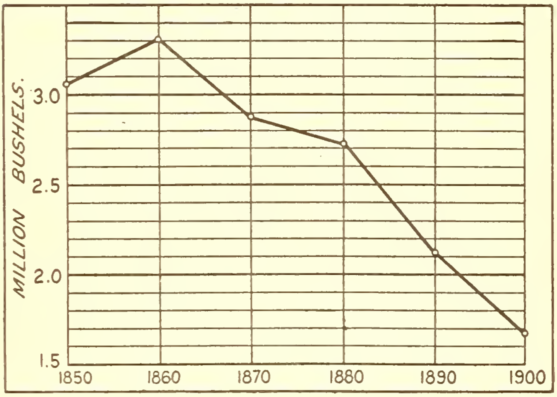

FIG. 3.—Diagram showing the total production of cereals in New Hampshire from 1850 to 1900. (U. S. Census.)

The figures in Table VI should not be taken to indicate that dairy farming is not a desirable type of farming. One of the troubles is that the farms in this region are too small for dairy and general farming. If their area was larger so that the farmer could either raise his own grain or else raise hay—which, under existing circumstances, is very high priced in New Hampshire—and thereby have an income to offset the enormous grain bills shown in Table V, even these dairy farms would show a satisfactory profit. More intensive cultural methods and better cows would also increase the profits in dairy farming. Table V shows that the grain bill averages 49 per cent of the total expenses of the farms in the four townships. Raising the grain would probably cost much less than buying it, but on the other hand enough hay can be grown on the same land to more than buy the equivalent of the grain that could be raised there. It is in this direction that the chief difficulty lies, as the farms are so small that there is not enough land on which to raise either grain or hay. It must be understood, however, that there are many farms of each type that are very successful and that are yielding their owners a good profit.

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[1] Average prices of farm products during 1908, in the region surveyed: Milk, 3¾ cents a quart; eggs, 28 to 32 cents a dozen; hay, the better grades, $20 a ton; concentrated mill feed, $30 a ton.

Another phase of farming which has not been mentioned, but which is very important in many respects, is the farm wood lot. There are large areas of nonagricultural land throughout New Hampshire which should be kept in woodland. Many such areas have been cleared in the past and are now being rapidly reforested. This nonagricultural land, which should grow timber, must not be confused with tillable or pasture land which has been partly depleted of its crop-producing power, and which in many cases is being left to grow up to bushes. A good system of forest management should be given special attention in many parts of the State.

TABLE VII.—*Comparison of average areas, capital, receipts, expenses, and profits for the better and the poorer dairy farms.*

Items covered by survey.	Better 61 farms.	Poorer 57 farms.	Average.
Area .... acres..	145	122	134
Tillable area .... do....	42.6	32.2	38
Capital invested	$6,712	$5,515	$6,134
Receipts	2,162	1,068	1,633
Expenses	1,175	861	1,024
Unpaid family labor	43	52	47
Labor income	608	−121	256

By comparing various factors on the better and poorer farms of each type, it is possible to learn where one succeeded and the other failed. The dairy farms are divided into two classes according to the labor incomes. All those receiving a labor income of $200 or more are placed in the better class, while those having a labor income of less than $200 are included in the poorer class. The most striking difference between the two, as shown by Table VII, is in the gross receipts, the better farmers taking in more than twice as much as the poorer ones. Furthermore, the expenses of the better dairymen, although larger than those of the poorer, were not at all in the same proportion as the receipts. The better dairymen earned, on the average, $608 for their year's work after all their expenses, interest, and family labor were paid, while the poorer dairymen lacked $121 of coming out even. Such results lead to further inquiry into the true conditions of the dairy farm.

TABLE VIII.—*Average distribution of investment of total capital on the better and the poorer dairy farms.*

Capital invested in—	Better 61 farms.		Poorer 57 farms.	
	Value.	Per cent.	Value.	Per cent.
Real estate	$4,885	72.8	$4,219	76.5
Machinery	385	5.7	329	5.9
Dairy cattle	786	11.7	473	8.6
Other live stock	393	5.9	352	6.4
Miscellaneous	263	3.9	142	2.6
Total	6,712	100.0	5,515	100.0

Table VIII shows that the average dairy farmer of the better class has a smaller proportion of his capital invested in real estate than one of the other class, owing to his having more invested in live stock. The only important difference in the distribution of capital on the better and the poorer classes of farms is in the amount invested in dairy cattle. It would seem that one of the reasons why the receipts are so small on the poorer farms is that they do not have enough dairy cows. They have the machinery and the live stock, such as horses, but have not the cows, which are the producing factor on an ordinary dairy farm. In this connection the size of the farm is one of several controlling factors as to the number of cows that a successful dairyman can keep. Referring to Table VII, it is found that the unsuccessful dairymen have one-fourth less area of tillable land than the successful ones. They do not have tillable land enough to support the fixed stock and also to keep a sufficient number of dairy cows to earn a satisfactory income. Whether or not the farmer should increase the size of his farm in order to have more cows or whether he should practice more intensive methods of culture, thereby obtaining larger crop yields, are matters which must be settled by each farmer according to his own individual judgment.

TABLE IX.—*Average of various factors showing the relation between the better and the poorer dairy farms.*

Items covered by survey.	Better 61 farms.	Poorer 57 farms.
Number of cows per farm	15.60	10.00
Tillable area per cow ..... acres	2.70	3.20
Receipts per cow	$89.00	$67.00
Receipts from dairy products for each dollar invested in dairy cattle	1.94	1.54
Expenses for grain	551.00	410.00
Cash paid for grain for each dollar invested in all live stock	.46	.50
Expense for labor, not including family labor	341.00	227.00
Receipts from crops	282.00	119.00

Table IX shows that not only has the average dairyman of the poorer class one-third fewer cows than the average of the better, but the receipts per cow are one-fourth less than those of the better ones—a difference of $22 per cow. This fact alone makes a difference of $220 a year. That the poorer dairymen are not spending all their time and energy in other farm work is shown by the receipts from crops, the better receiving $282, while the poorer receive $119. A small number of poor cows seems to go with a few poor crops. To summarize, it seems that the lower returns on these poorer dairy farms result from smaller farms, poorer cows, lower crop yields, and poorer farming in general.

The proportionate expense for concentrated feeds is nearly the same for both classes. This fact does not account for the small profit of the poorer class.

TABLE X.—*Comparison of average areas, capital, receipts, expenses, and profits for the better and the poorer poultry farms.*

Items covered by survey.	Better 20 farms.	Poorer 20 farms.
Area, ...acres..	75	55
Capital invested........	$4,902	$3,330
Receipts........	2,718	790
Expenses........	1,445	583
Unpaid family labor........	93	22
Labor income........	935	19

The poultry farms were divided according to the labor income; the 20 farms which are placed in the better class received a labor income of $300 or more, while the poorer 20 each received less than $300. Table X indicates that the average poultry man of the better class is doing better, partly at least because of larger business. His gross receipts are three and one-third times as great and his expenses are two and one-third times as great as the average of the poorer class.

TABLE XI.—*Average distribution of investment of capital on the better and poorer poultry farms.*

Capital invested in—	Better 20 farms.		Poorer 20 farms.	
	Value.	Per cent.	Value.	Per cent.
Real estate........	$3,617	73.8	$2,700	81.1
Machinery........	283	5.8	153	4.6
Poultry........	492	10.0	186	5.6
Other live stock........	359	7.3	211	6.3
Miscellaneous........	151	3.1	80	2.4
Total........	4,902	100.0	3,300	100.0

Table XI shows that the poorer poultry men have about all their money in real estate, while those of the better class not only have larger farms, but have live stock and equipment to run these farms. The poorer 20 farmers do little or nothing, and get $19 a year for their work. The better 20 farmers are utilizing the farm and equipment, and receive $935 for their year's work.

TABLE XII.—*Average of various factors showing the relation between the better and the poorer poultry farms.*

Items covered by survey.	Better 20 farms.	Poorer 20 farms.
Number of hens per farm	618	232
Receipts from poultry and poultry products sold for each dollar invested in poultry	$4.39	$3.30
Total sales of poultry and poultry products	2,145.00	613.00
Crop receipts	288.00	102.00
Expenditure for grain	1,138.00	420.00
Amount paid for grain per dollar invested in all live stock	1.33	1.06

According to Table XII the average poultry farmer of the poorer class not only has a small number of hens, but does not take care of what he has. The gross receipts for every dollar invested in poultry can not be counted as the receipts from hens alone, because several poultry men raised broilers, the receipts from which are all figured in the amount given in the table. The poorer 20 poultry men, having but a few hens to care for, might be expected to devote their time to growing crops. That they do not do this is shown by the amount received for crops by the two classes of farmers. Comparison of the quantity of grain purchased does not show that the poorer men are spending all their income for grain, but rather the reverse, the good farmers spending proportionately more.

TABLE XIII.—*Comparison of average areas, capital, receipts, expenses, and profits for the better and the poorer general farms.*

Items covered by survey.	Better 46 farms.	Poorer 53 farms.
Area acres	108	93
Tillable area do	35.2	28.4
Capital invested	$6,252	$3,861
Receipts	2,173	703
Expenses	1,114	505
Unpaid family labor	54	47
Labor income	693	−42

The general farm represents variations or combinations of some of the other types, as poultry and fruit or dairy and poultry.

There were 46 general farms which had a labor income above $150, and 53 which were below this amount.

Table XIII gives the findings of the survey as applied to general farming in the territory under consideration.

This type of farming follows the others in most respects. The poorer men have considerably less capital and do very little work in any one farming operation.

The general farmers have more invested in real estate than those in any of the other types and less invested in live stock, as shown by a comparison of Table XIV with the table previously presented.

TABLE XIV.—*Average distribution of investment of the capital on the better and the poorer general farms.*

Capital invested in—	Better 46 farms.		Poorer 53 farms.	
	Value.	Per cent.	Value.	Per cent.
Real estate	$4,911	78.6	$3,104	80.4
Machinery	381	6.1	220	5.6
Live stock	768	12.3	441	11.4
Miscellaneous	192	3.0	96	2.6
Total	6,252	100	3,861	100

Some interesting comparisons are also given in Table XV in regard to the relative quantities of grain bought and raised in connection with the three different types of farming.

TABLE XV.—*Comparison between the average quantity of grain bought and the average quantity grown on farms of three different types.*

Items of comparison.	Dairy farms.		Poultry farms.		General farms.	
	Better 61.	Poorer 57.	Better 20.	Poorer 20.	Better 46.	Poorer 53.
Cash paid for grain for each dollar invested in live stock	$0.46	$0.50	$1.33	$1.06	$0.53	$0.51
Value of grain raised for each dollar invested in live stock	.075	.081	.036	.031	.085	.065

The value of the grain raised is figured at $30 per ton, or 1½ cents per pound. Western competition in growing cheap grain during the period of 1880–1900 was the means of getting New England farmers out of the habit of growing their own grain. The buying of grain has become so firmly fixed in their systems of farming that although grain has almost doubled in price very little if any more is at present grown on their farms. It was during the period of cheap grain in the eastern markets that such large areas of farm lands were allowed to revert to woodland. At the present time, when concentrated feed has increased in price, the average farmer tills only about half the land that his father did. He has not the tillable land upon which to raise grain or to raise other crops with which to buy grain. With a yield of one ton of grain to the acre it would require more than 4,000 acres in grain to grow the equivalent of what was purchased during the past year on the 266 farms. There is no question that grain can be grown more cheaply on good tillable land in the East than it can be bought at present prices. However, it is impossible for the farmers in southern New Hampshire to raise anywhere near enough concentrates on the present area of tillable land and yet keep the same number of live stock. Furthermore, when hay is bringing $20 a ton, and when it is necessary to pay $30 a ton for concentrated feeds, it will not pay to raise the small grains on land that will grow two tons of first-class hay to the acre, except as those grains are grown in connection with a rotation of ensilage and a nurse crop for reseeding. The results of this survey show that the quantity of grain that the poorer farmer buys is not alone responsible for his low labor income.

Table XVI shows the increase or decrease in the number of animals on the farms under consideration during a period of one year, and the average value of these animals in the different towns.

TABLE XVI.—*Comparison of total number and individual value of certain kinds of farm animals on 266 farms, by towns.*

Items of comparison.	Amherst (60 farms).	Hollis (95 farms).	Lyndeboro (43 farms).	Milford (68 farms).	Total (266 farms).
Number of cows on Apr. 1, 1908	592	756	429	468	2,245
Number of cows on Apr. 1, 1909	551	700	427	433	2,111
Average value per head	$38	$43	$36	$39	
Number of fowls on Apr. 1, 1908	4,934	5,549	5,935	15,308	31,726
Number of fowls on Apr. 1, 1909	4,862	5,640	5,883	15,932	32,317
Average value per head	$0.66	$0.77	$0.68	$0.90	
Number of horses	137	252	96	129	614
Average value per head	$115	$117	$120	$121	

Table XVI shows that the number of dairy cows has decreased in every town, while the poultry, which has increased in two and decreased in the other two towns, shows an increase in the total of all the towns.

The table also shows some interesting data as to the average value of the individual animals in the separate towns where one type of farming is developed more than another.

TABLE XVII.—*Average relation of the labor incomes to the ages of the farmers.*

Labor income.	Average age.	Number of farms.
From —$500 to —$1	57.5	80
From 0 to 400	50.2	98
From 401 to 800	51	47
From 801 to 2,000	47	41
Average and total	52	266

The relation between the age of the farmer and his earning capacity is set forth in Table XVII. A general correlation exists between the ages of the farmers and their profits, but there are many exceptions to this rule. Not all the old men are losing money. It is interesting to note what a large percentage of the farmers in that region are over 50 years of age. The results would seem to show that a farmer's greatest earning capacity is before he reaches the age of 50 years.

SYSTEMS OF FARMING.

When the farmers stopped raising grain some 30 years ago, they let their fields stay down in grass very much longer than formerly and eventually forgot all about a rotation of crops. A great many fields when they would no longer yield a fair crop of hay were turned into pasture. Young pine, as well as other trees, soon sprang up in these pasture fields, and to-day, instead of tillable fields, they are young forests. Thus it is that the farmers of this region have no definite system of management. Their present rotation, if it may be called such, is corn, oats for hay, and then hay from four to six years. Sometimes corn is planted twice in succession, and a few farmers let the oats ripen and thrash them. It is significant that only one thrashing machine was found in all the four towns surveyed. Many farmers follow the method of seeding after haying or after the oats have been taken off for hay. One great fault of this method is that clover is frequently omitted from the seeding and is not added the following spring. Many farmers stated that they were not sowing clover at all. By neglecting to get a good stand of clover whenever their land is seeded they are making a vital mistake, for clover is, without doubt, the basis of a successful rotation in this section. Whatever practice is followed, a shorter rotation must be used if the supply of humus is to be maintained in the lighter soils of this region. It is very probable that the use of lime on most of the soils in this territory would help materially in obtaining a stand of clover.

APPLICATION OF MANURE.

In the application of fertilizers in this portion of New Hampshire the common practice is to put all the manure on the corn ground, either plowing it under or harrowing it into the soil after plowing. Each of these methods seems to have produced good results on the corn crop. The trouble is that when all the manure is put on the corn crop nothing more is put on that field until five or six years later, when corn is again planted. A much better plan is not to make such heavy applications to the corn land and to top-dress the new seeding of clover with part of the manure.

FRUIT GROWING.

Very little fruit except strawberries is grown on the lowlands of this region on account of the early and late frosts that are of frequent occurrence in the valleys. Apples thrive especially well on the uplands, and peaches and grapes are cultivated to a considerable extent in a few localities. Many orchards are not carefully managed. If spraying were universally practiced, it would mean greatly increased returns to many farmers.

Fruit growing when properly carried on promises to be one of the best types of farming for this region. Many instances were found where a combination of fruit and poultry has proved very successful.

PASTURES.

To the dairymen and live-stock farmers of New Hampshire one of the greatest problems is that of pasture. The topography of a large proportion of eastern dairy farms is such that pasture land can not be used for any other crop, and for this reason good, permanent grazing land is a necessity. The once fertile grazing lands of all the southern part of the State are fast disappearing. No attention has been given them and their loss is being sharply felt by the dairymen. The usual excuse for their present condition is that it pays better to let them grow up to pine, yet the common value of land which is allowed to grow up to timber is not more than $4 to $6 an acre. In this case the land suited to pasture should not be confused with the areas that are adapted to nothing but forest. Any crop which furnishes from 35 to 40 per cent of the yearly maintenance of the cattle should receive attention. A good, rich pasture not only furnishes a supply of roughage and concentrates for five months in the year but also provides this supply at a very reasonable cost as compared with other crops.

With the present prices of all feeding stuffs, the next few years will show more than ever the striking need of improvement of these hillside grazing lands, and until they are restored to somewhere near their former condition all live-stock farmers will seriously feel their loss.

SUMMARY.

(1) The area of improved land in New Hampshire has decreased rapidly within the last 40 years, the decrease from 1880 to 1900 being 54 per cent.

(2) The average farmer in the region surveyed received $337 for his year's work, or at the rate of $1.07 a day for 313 days.

(3) Dairying and general farming, even though they represent 81 per cent of the total number of farms, are not so profitable in this region as either fruit or poultry, owing partly to the fact that dairying and general farming require comparatively large areas for their profitable operation, while in this section the farms are in the main too small to yield satisfactory profits. Thus it would seem that many of these farms should either be combined into larger ones or changed to some type which is better adapted to a small area.

(4) Fruit growing is especially well adapted to the uplands. This industry promises to be one of the most profitable for that region.

(5) Poultry farming is yielding very satisfactory profits on many of the farms investigated. It appears to be well suited to small areas in both the valleys and uplands.

(6) A careful study of the conditions seems to show that a combination of fruit and poultry, especially winter egg production, would be very satisfactory on many of the smaller hill farms.

(7) Inasmuch as several farmers engaged in each of the types of farming are making good profits, it would seem that the particular type is not so important as the management of the farm. At the same time it is a matter of no small importance that the type of farming should be adapted to the local conditions of topography, soil, and markets.

(8) The most successful farmers are not as a rule following methods of farm practice different from those of the unsuccessful, but are utilizing their land and equipment to much better advantage.

(9) The better farmers are making greater profits, not by spending less but by taking in more.

Approved:
JAMES WILSON,
Secretary.

WASHINGTON, D. C., *January 5, 1911.*

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